CLAIMS

1. Machine for the formation of metal mesh (11) made of metal wires obtained by attaching together a plurality of longitudinal metal wires (13) to a plurality of transverse metal wires (15), said machine comprising at least a first feed assembly (12) able to make said longitudinal wires (13) advance step-wise, a second feed assembly (14) able to arrange at least one transverse wire (15) at a time in a first preparation position, a positioning apparatus able to arrange said transverse wire (15) in a second attachment position, and a welding assembly (16) able to attach said transverse wires (15) to said longitudinal wires (13), said positioning apparatus comprising at least a loading assembly (30), provided with a gripping and transfer device (31), able to locate said transverse wire (15) in said second attachment position, characterized in that it comprises thrust means (33) able to take said transverse wire (15) from said first preparation position to a third intermediate pick-up position, near said second attachment position, wherein said transverse wire (15) is picked up by said gripping and transfer device (31), said thrust means (33) comprising at least a rotary element (52) provided with blade means (54) able to thrust the transverse wire (15) from said first preparation position to said third intermediate pick-up position.

2. Machine as in claim 1, characterized in that said thrust means (33) are able to thrust said transverse wire (15) from said first preparation position to said third intermediate pick-up position along a sliding surface (41).

3. Machine as in claim 2, characterized in that said loading assembly (30) comprises a stop element (34) able to cooperate with said sliding surface (41) to keep said transverse wire (15) on said surface.

4. Machine as in any claim hereinbefore, characterized in that said loading assembly (30) comprises a retaining device (32) defining an insertion seating (40), made in said first preparation position, wherein said transverse wire (15) is fed by said second feed assembly (14).

5. Machine as in claim 4, characterized in that said retaining device (32) comprises two jaws (35a, 35b) of which at least one (35b) is cyclically movable from a closed position, wherein it defines with the other jaw (35a) said insertion seating (40), to an open position wherein said transverse wire (15) is released to be taken to said third intermediate pick-up position.

6. Machine as in claim 5, characterized in that said movable jaw (35b) is hinged on the other jaw (35a) and has an abutment element (37) cooperating with eccentric means (38) made to rotate by a shaft (39), the rotation of said eccentric means (38) causing the cyclic movement of said movable jaw (35b) from said closed position to said open position and vice versa.

7. Machine as in any claim hereinbefore, characterized in that said gripping and transfer device (31) comprises at least a prehensile member (45) associated with relative movement means (43, 46, 47, 48) able to take it cyclically from said third intermediate pick-up position to said second attachment position and vice versa.

8. Machine as in claim 7, characterized in that said movement means comprise a rod (43) driven by a relative shaft (48) and connected to slider means (46) sliding on guides (47) and associated with said prehensile member (45).

9. Machine as in claim 7 or 8, characterized in that said prehensile member consists of a gripper (45) with two jaws (50) able to open and close elastically, said jaws (50) defining, in their closed condition, a housing seating (51)

for said transverse wires (15).

10. Machine as in claim 9, characterized in that said jaws (50) are shaped with lead-in surfaces, converging and at least partly curved, on which said transverse wires (15) are able to slide in order to be inserted into and emerge from said housing seating (51).

11. Machine as in claims 1 and 9, characterized in that, when said gripper (45) is in said third intermediate pick-up position, said blade means (54) are able to cause said jaws (50) to open due to the effect of the thrust exerted on said transverse wire (15), allowing said transverse wire (15) to be inserted into said housing seating (51).

12. Machine as in claim 11, characterized in that said loading assembly (30) comprises a stop element (34) able to retain said transverse wire (15) at least during the step of insertion into said housing seating (51), preventing it from emerging due to the effect of an excessive thrust by said blade means (54).

13. Machine as in claims 1, 5 and 7, characterized in that the rotation of said rotary means (52) and the cyclical movement of said prehensile member (45) and of said movable jaw (35b) are managed by a command and control assembly which coordinates them according to at least the drive of said welding assembly (16).

14. Method for the formation of mesh (11) by means of the reciprocal attachment of a plurality of longitudinal metal wires (13) to a plurality of transverse metal wires (15), wherein said longitudinal wires (13) are made to advance step-wise and said transverse wires (15) are moved from a first preparation position, wherein they are fed one by one, to a second attachment position, characterized in that this movement is performed by taking each transverse wire (15) to a third intermediate pick-up position wherein it is gripped

by gripping and transfer means (31), provided with at least a prehensile member (45), in order to be located in said second attachment position, while another transverse wire (215) is fed to said first preparation position.

15. Method as in claim 14, characterized in that the initial part of the transfer of said transverse wire (15) from said first preparation position to said third intermediate pick-up position occurs while another, previously fed transverse wire (115) is located in said second attachment position by said gripping and transfer means (31).

16. Method as in claim 14 or 15, characterized in that the final part of the transfer of said transverse wire (15) from said first preparation position to said third intermediate pick-up position occurs while said prehensile member (45) of said gripping and transfer means (31) moves from said second attachment position to said third intermediate pick-up position, so that said third intermediate pick-up position is reached substantially simultaneously due to the reciprocal approach of said transverse wire (15) and said prehensile member (45).

17. Method as in any claim from 14 to 16 inclusive, characterized in that the transfer of said transverse wire (15) from said first preparation position to said third intermediate pick-up position is performed by means of thrust means (33) moved in coordination with said gripping and transfer means (31).

18. Method as in any claim from 14 to 17 inclusive, characterized in that the transfer of said transverse wire (15) from said first preparation position to said third intermediate pick-up position is conditioned by its release by a selectively openable retaining device (32) located in correspondence with said first preparation position.

19. Method as in claims 17 and 18, characterized in that the

opening of said retaining device (32) occurs in coordination with the movement of said thrust means (33) and of said gripping and transfer means (31).

20. Loading assembly for at least a first metal wire (15), fed in a first preparation position, to be attached to at least a second metal wire (13) in a second attachment position, said loading assembly including movement means able to take said first wire (15) from said first preparation position to said second attachment position, characterized in that said movement means comprise at least a gripping and transfer device (31), able to grip said first wire (15) in order to locate it in said second attachment position, and thrust means (33) able to take said first wire (15) from said first preparation position to a third intermediate pick-up position wherein it is picked up by said gripping and transfer device (31).